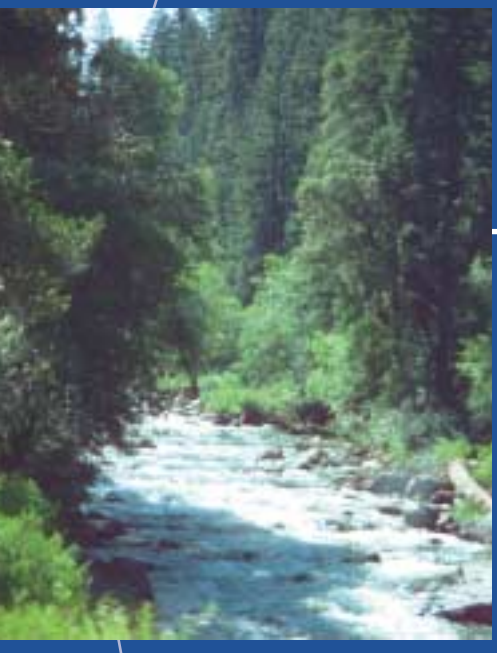

Water

GOAL FOR 2020

Ensure a reliable supply of affordable high quality water to meet the needs of residents, businesses, agriculture and the environment.

"Much of what we value about California is connected to our water environment. Protecting this environment, efficiently and effectively putting water to good uses and ensuring adequate and safe water supplies are essential to sustaining the California dream. We can have it all; water for people, fish and wildlife, industries and agriculture, but not without cost. Whether it be time, talent or money, these investments are fundamental to ensuring California's prosperity."

—Winston H. Hickox, Secretary, California Environmental Protection Agency

Today's Issues

People, wildlife, agriculture and recreation depend upon water for existence. Our diverse industrial economy requires a reliable, high quality water supply. Water is a key component of all life and has been the subject of struggle and competition throughout our State's history. In order to meet our water needs, California must provide reliable and efficient water infrastructure systems.

WATER SUPPLY

Our water supply will continue to be strained based on expectations for future demand due to growth and competing needs for water sources. Future economic and population growth will significantly expand the use of our already limited water supply and we currently do not know whether supply will meet our needs. Today, our groundwater basins are over-drafted and surface storage alone cannot meet future water demand, especially during droughts. In addition, our long-term future water supply may be less predictable due to factors such as climate changes, which could lead to smaller snow-packs and earlier melting in the Sierras. There will be increasing competition for water from the Bay-Delta system among agricultural, urban and environmental needs, and new or expanded reservoirs proposed by CALFED will take many years to construct. In Southern California, the 4.4 Plan requires that we reduce our dependence on

"Since the 1960s, there have been no real additions to our water infrastructure. It is my belief that unless we begin to build an infrastructure, then we're going to be in the same situation with water as we are today with electricity."

U.S. Senator Dianne Feinstein, Capital Alert, "Californians Try to Find Common Ground on Water" February 2, 2001

Some California Water Facts:

- **In 1999, there were 694 beach closure days and 4,186 beach warning days due to contamination.**
- **It can take 20 years (or longer) to develop and finance a supplemental water supply for new developments.**
- **Over 500 bodies of water have been listed as impaired.**
- **About 22 million people, two-thirds of California's population, rely on the Bay-Delta for all or some portion of their drinking water.**
- **About 894 gallons of water are needed to grow the food for the daily diet of an average person. On an annual basis, an individual's water use is about 326,310 gallons.**
- **From 1985-1998, California agriculture's use of developed water supplies dropped approximately 12%, due in part to the use of water efficient irrigation techniques like sprinklers and micro-drip.**
- **In 2001, the State Water Project delivered 35% of the water entitlements of its customers because of below normal runoff to state reservoirs.**

Mono Lake, California

PHOTO CREDIT: D. KOLKE/CALIFORNIA DEPARTMENT OF WATER RESOURCES

"Building new communities faster than water supplies can be acquired to serve them puts existing businesses, agriculture, residents, and the environment at risk, especially during future droughts. Early linkage between land use and water supply planning is essential because today it can take 20 years (or longer) to develop and finance a supplemental water supply."

East Bay Municipal Utility District

the Colorado River from our current level of 5.2 million acre-feet (MAF) per year to 4.4 MAF per year over the next few decades. Conjunctive use programs represent an opportunity to increase the amount of water captured and stored for use, while maintaining an environmental balance.

WATER PLANNING

The California Department of Water Resources (DWR) oversees the state's water resources, but comprehensive broad-based planning is difficult due to gaps in data and the complexity of the state's water delivery systems. Current conveyance, treatment, water facilities ownership and oversight are fragmented; there are thousands of separate water authorities that serve the state's population. This fragmentation increases the difficulty of having a coordinated approach for assessing and delivering adequate water supply and employing sharing techniques. We also have limited information on water supply in groundwater basins. Many communities do not plan for and assess the impact of increased development and water needs on the region's water supply. Communities must also plan for and manage flood risk. Current site design and land use patterns contribute to flood risk through channeling of high volumes of runoff and reduced water percolation.

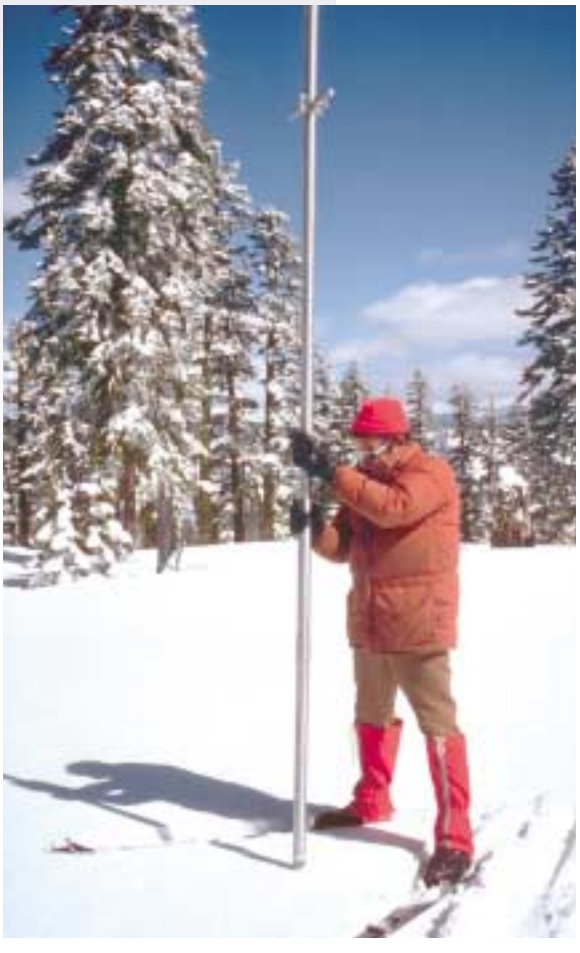

PHOTO CREDIT: D. KOLKE/CALIFORNIA DEPARTMENT OF WATER RESOURCES

Core sampling the Sierra snowpack to determine water levels, Sierra Nevada Mountains, California

WATER QUALITY

Maintaining and improving residential, industrial and environmental water quality is essential. In developed areas, contaminants have entered groundwater and surface water through sources such as leaking underground storage tanks and septic systems, as well as contaminated soils. Low-density development patterns increase runoff and lawn treatment techniques contribute to water contamination. In non-urban areas, pesticides, nutrients and salts have entered groundwater and surface waters. Overlogging and improper mine closures in rural areas have changed the natural landscape and impacted water quality. Urban runoff and sewer overflows from aging and inadequate infrastructure have resulted in beach closures, ocean water pollution and fresh water contamination. The control of nonpoint source pollution (polluted run-off from surface areas like roads, lawns and fields) continues to be a challenge. Wastewater treatment facilities will require significant investment in order to increase capacity and merely maintain today's quality standards for the future. Innovative, regional site-specific treatment approaches will be needed, as well as the mechanisms to fund them.

"The passage of California's Parks and Water Bonds represents a historic downpayment on the future quality of life in our State."

Governor Gray Davis

PHOTO CREDIT: CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

Actions Taken

- **Last year, at the recommendation of this Commission and with the support of the Governor and the Legislature, the voters approved Proposition 13, the water bond. A combination of Proposition 13 and General Funds has been allocated for improved water supply and quality; protection of watersheds, coastal waters and groundwater resources; drought protection; and flood control and protection.**
- **The Governor, the Legislature, the Federal government and business, agricultural, environmental and urban stakeholders adopted and have begun to implement the historic CALFED plan for improving water supply and quality from the Bay-Delta and restoring this important ecosystem.**
- **California's Colorado River Water Use Plan outlines how the State will reduce Colorado River use to 4.4 MAF per year.**
- **The Governor's Advisory Drought Planning Panel completed a contingency plan for mitigating the impacts of critical water shortages.**
- **Through financial incentives and implementing legislation, the State has encouraged groundwater storage and the conjunctive use of surface and groundwater supplies.**

CASE STUDY

Creative Uses of State Revolving Loan Funds

- **In California, the Nature Conservancy received a State Revolving Fund loan from the California State Water Resources Control Board to purchase more than 120,000 acres of ranchland, place conservation easements on the land and then resell it to a ranching company to assist with repaying the loan.**
- **The City of New York set aside $260 million for land acquisition and conservation easements in areas needed to protect its water supply. Of this total amount, $27 million was granted from the State Revolving Fund.**
- **In Ohio, the Water Pollution Control Loan Fund provided over $1.1 million in loans to a housing development company for a wide variety of structural and other best management practices that protected an important watershed. Also in Ohio, water-related funds have been used for brownfield remediation. The State Water Revolving Fund program provided a loan for the cleanup of contaminated groundwater and soils in a 20-acre industrial site in Cleveland to prepare the area for commercial reuse.**

Source: Livable Places Update, Local Government Commission's Center for Livable Communities

CASE STUDY

Above Ground Water Storage: Diamond Valley Lake, California

This is the largest earthen dam project in the United States. It was started in 1995 by the Metropolitan Water District and is currently in operation. Diamond Valley Lake provides 800,000 acre-feet of water capacity. The reservoir has increased the amount of water that can be stored above-ground in Southern California by almost 50%, up to 2 million acre-feet of storage capacity. The reservoir improves the stability of the Southern California water supply and will reduce the power required to pump water over the northern mountains.

Source: Los Angeles Times
April 15, 2001

Investing for California's Future

The Commission has identified the following priorities for meeting our water needs:

- *Continuing to provide Legislative support for water planning and infrastructure development*
- *Implementing CALFED and Proposition 13, the State water bond*
- *Employing water conservation, recycling and reclamation techniques*
- *Expanding use of water transfers*
- *Conducting statewide, integrated research and planning for water infrastructure, especially for water and land use planning*
- *Implementing water storage through groundwater banking, off-stream storage and conjunctive use techniques*

Recommended Options

The following recommended options will help achieve our priorities:

FINANCING AND FISCAL POLICY

- Secure local and federal financial commitments to CALFED.
- Create state incentives for conservation and implementation of Best Management Practices (BMPs) for business, residential and agricultural uses, such as gray water irrigation, low flow appliances and drip irrigation systems.
- Develop additional incentives to encourage locally controlled groundwater management.
- Leverage matching funds from the federal and local governments and other third party sources.

PHOTO CREDIT: METROPOLITAN WATER DISTRICT

"Manufacturers and other large employers need to join with farmers, water districts and environmentalists to link development with water planning."

San Jose Mercury News
Editorial, June 20, 2001

IMPROVED PLANNING

- Complete the update of the 5-year California Water Plan, scheduled for release in 2003.
- Create and agree upon projections for statewide and regional water needs and an assessment of supply as a foundation for developing a statewide water infrastructure plan.
- Determine the structural components needed to address nonpoint sources of pollution.

PHOTO CREDIT: CLAUDE LAVAL CORPORATION

Drip irrigation system protected by sand media filters, Fresno, California

- Develop and implement statewide watershed policy with support for collaboration with local watershed interest groups.
- Implement policy that requires future development to identify reliable and sufficient water supply.
- Provide incentives to conduct regional water planning and floodplain management.
- Integrate water supply planning with land use planning and other infrastructure in general plans.

BARRIER REMOVAL

- Seek delegation from federal agencies to incorporate federal environmental requirements in state environmental processes.
- Streamline CEQA to expedite the delivery of projects while ensuring that the original intent of protecting the environment is maintained.
- Streamline the process for water transfers, while mitigating possible adverse third party impacts.
- Clarify the wheeling statute for water transfers, which facilitates transfers between water agencies and districts at "fair compensation" when unused capacity is available.
- Consolidate retail and wholesale water agencies and districts.

CASE STUDY

Water Flow Technology for Water Conservation: Air Injection Irrigation

Farm operations, forestry and landscape/recreation managers are using advanced water technology in the areas of communications and automatic control systems, global positioning systems, pumping, filtration, piping, and plant and soil operations. Water efficiency rates increase from approximately 40% to over 70%, and in some cases up to 85%, with the use of advanced water flow technology and management. For example, air injection irrigation systems represent a recent technological breakthrough. They create tiny bubbles that mix throughout subsurface drip irrigation water. The injected air results in an improved soil environment and increases in root masses and crop yields. Tests of the new technology revealed a 39% increase in crop yield. The Center for Irrigation Technology at California State University, Fresno is working with the Central California Futures Institute, the Fresno Business Council, the University Business Center and the Great Valley Center to partner with water technology companies in research, development, education and market development of water flow and process technology.

Source: Central California Futures Institute, April 2001

CASE STUDY

Institutional Water Conservation: University of California, Santa Barbara

The University of California, Santa Barbara implemented an institutional water-efficiency program that led to significant water and cost savings. Through cost-effective indoor and outdoor conservation efforts, total campus water use was reduced by nearly 50% between 1987 and 1994, even as the campus population increased. Total cost savings to the campus for the years 1989 through 1996 from efficiency improvements were approximately $3.7 million, excluding energy and maintenance savings.

Source: "Sustainable Use of Water: California Success Stories," Pacific Institute, January 1999

IMPROVED IMPLEMENTATION AND USE

- Continue implementation of the CALFED Bay-Delta Program.
- Begin implementation of the 4.4 Plan, which includes lining of the All American and Coachella Canals and implementing groundwater storage programs.
- Encourage conjunctive use of surface and groundwater supplies, especially in the Central Valley and Southern California.
- Increase the capacity of existing facilities or build new water treatment facilities and collection systems (sewers).
- Develop additional standards for "green" site design and landscaping to reduce runoff.
- Utilize technology and innovation to improve efficiency in existing water systems.
- Complete the federally and State-funded Sacramento-San Joaquin Rivers Basin Comprehensive Study, which includes flood damage reduction and ecosystem restoration measures for the Central Valley.
- Increase capacity to manage storm water, urban water runoff and combined sewer overflow.
- Provide public education on conservation practices and pollution prevention practices.

PHOTO CREDIT: D. KOLKE/CALIFORNIA DEPARTMENT OF WATER RESOURCES

Kern-Friant Canal, Los Angeles, California

Elements of the CALFED Program:

- **LONG-TERM LEVEE PROTECTION PLAN.** Provides significant improvements in the reliability of levees.

- **WATER QUALITY PROGRAM.** Makes significant reductions in point and nonpoint source pollution for the benefit of all water uses and the Bay-Delta ecosystem.

- **ECOSYSTEM RESTORATION PROGRAM.** Provides significant improvements in habitat, restoration of critical ecological processes and species populations, and reduces conflict with other Bay-Delta system resources.

- **WATER USE EFFICIENCY PROGRAM.** Encourages water recycling and efficient use of water for agricultural purposes, urban purposes, and managed wetlands by providing support and incentives at the local level, including expanded planning, technical and financial assistance.

- **WATER TRANSFERS PROGRAM.** Provides a framework of actions, policies and processes to facilitate, encourage, and streamline an active and properly regulated water market that will allow water to move between users, including environmental uses, on a voluntary and compensated basis.

- **WATERSHED PROGRAM.** Promotes locally-led watershed management activities and protections relevant to achieving CALFED goals through financial and technical assistance.

- **STORAGE.** New groundwater and/or surface storage will be developed and constructed, together with aggressive implementation of water conservation, recycling, and a protective water transfer market. Evaluate and determine the appropriate mix of surface water and groundwater storage, identify acceptable projects and initiate permitting and construction if program linkages and conditions are satisfied.

- **DELTA CONVEYANCE.** Since CALFED will depend on the existing Delta conveyance system with some modifications, evaluate its effectiveness, and add additional conveyance and/or other water management actions if necessary to achieve CALFED goals and objectives.

Source: CALFED Bay-Delta Program website: www.calfed.ca.gov